

MICHIGAN STATE UNIVERSITY

January 15, 2016

MEMORANDUM

TO: Dr. Douglas Estry, Associate Provost for Undergraduate Education
and Dean of Undergraduate Studies

FROM: Dr. John Gaboury, Associate Provost for Academic Services
and Enrollment Management

RE: Request for a New Minor in Forestry

For Transmittal to the University Committee on Undergraduate
Education (UCUE)

The request referenced above is being sent to the University Committee on Undergraduate Education (UCUE) in accordance with the *Bylaws for Academic Governance*, 4.4.

UCUE Response Requested:

Please ask the committee to consider the request referenced above and provide consultative commentary. Please mail the related materials referenced under the heading Attachments at the end of this memorandum to the committee members.

After receiving the committee's consultative response, the Provost will make a determination to forward or not to forward the request to the University Committee on Curriculum for its approval of curriculum and degree requirements.

If you have any questions, please call Joy Speas, University Curriculum Administrator, at 5-8420.

Thank you.

Attachments:

1. Request to Establish a New Academic Program form dated October 29, 2015: Minor in Forestry and attachments.

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**University
Curriculum and
Catalog**

Hannah Admin. Building
426 Auditorium Road
Room 151A
East Lansing, MI 48824

517-355-8420
Fax: 517-353-1935

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES

1. Request to establish a **Minor in Forestry** in the Department of Forestry. The University Committee on Undergraduate Education (UCUE) will consider this request.

- a. **Background Information:**

Students in other Departments like Animal Science, Community Sustainability, Plant Biology, Entomology, Horticulture, Fisheries and Wildlife, Agronomy, Integrative Biology, and Plant, Soil, and Microbial Sciences have expressed interest in minoring in Forestry. Industry hires many professionals with backgrounds in the above fields contingent upon a specified amount of Forestry knowledge. The Department of Forestry has never had a minor and the development of a broad Forestry minor would better serve students in other majors who desire concentrated course work in forestry.

Michigan State University has the only Department of Forestry in the lower peninsula. Currently there is no sector of MSU's Agricultural Technology program that offers this training, thus development of this minor would be unique to the University.

- b. **Academic Programs Catalog Text:**

The Minor in Forestry is designed to serve students in other fields who desire additional training related to understanding of the nature of trees and forests and social-biological aspects of managing forest ecosystems. The minor is available to students who are enrolled in bachelor's degree programs at Michigan State University other than the Bachelor of Science Degree in Forestry.

With the approval of the department and college that administer the student's degree program, courses that are used to satisfy the requirements for the minor may also be used to satisfy the requirements for the bachelor's degree.

Students who are interested in enrolling should contact an undergraduate advisor in the Department of Forestry.

Requirements for the Minor in Forestry

	CREDITS
Students must complete the following requirements (16 to 19 credits):	
1. All of the following courses (8 credits):	
FOR 204 Forest Vegetation	3
FOR 222 Forestry Field Methods	2
FOR 330 Human Dimensions of Forests	3
2. One of the following courses (3 credits):	
FOR 101 Michigan's Forests	3
FOR 202 Introduction to Forestry	3
3. One of the following courses covering social aspects of Forestry (3 or 4 credits):	
FOR 405 Forest Ecosystem Services	3
FOR 414 Renewable Wood Products	3
FOR 462 Forest Resource Economics and Management	4
FOR 466 Natural Resource Policy	3

4. One of the following courses covering biological aspects of Forestry (2 to 4 credits):
- | | | | |
|-----|------|--|---|
| FOR | 404 | Forest Ecology | 3 |
| | | And | |
| FOR | 404L | Forest Ecology Laboratory | 1 |
| FOR | 406 | Applied Forest Ecology: Silviculture | 3 |
| | | And | |
| FOR | 406L | Applied Forest Ecology: Silviculture
Laboratory | 1 |
| FOR | 412 | Wildland Fire | 2 |
| PLP | 407 | Diseases and Insects of Forest and Shade
Trees | 4 |

Effective Fall 2016.



Michigan State University - Office of the Registrar

View a Program		Main Menu
Joy Speas, RO		Wednesday, 11/4/2015
Program Name: Forestry Degree: MNUN Sequence Number: 1		Program Request ID: 3093
Effective Dates: Fall 2016 - Open Status: Interim Initial Action: New		Requested Date: 10/7/2015 10:27:01 PM
1. Department/School/College: 02360 Department of Forestry		
2. Name of Program: Forestry		
3. Name of Degree: MNUN		
4. Type of Program: Minor		
5. Effective Start Semester: Fall 2016		
6. Target student audience for the program: Undergraduates in CANR and CNS		
7. Enrollment: What is the expected enrollment per year: 10 What is the minimum enrollment acceptable: 5		
8. Source of budget for the program: To align academic planning and curricular change, ALL requests for NEW funds must be included in the College's annual planning letter. Provost approval of new funds and the effective date for the new program must align. If funding is not approved, then the program request will not be forwarded to Faculty Senate. Internal reallocation If new funds, was this request included in the College's annual planning letter? Indicate yes or no. If no, then this is a department or college fund reallocation (If the program is implemented, no additional resources are required.).		
9. Projected Costs as compared to other programs in unit: Same		
10. Staff requirement: How many additional staff will be required: 0 Who will provide the primary instruction. Describe any external linkages(industry, government, etc.): Current Forestry faculty; Lesley Schumacher-Lott (undergraduate advisor for Forestry)		
11. Will additional equipment be required: Approximate cost: 0 Source of funding:		
12. Will additional library materials be required: Approximate cost: 0 Source of funding:		
13. Will additional space be required: Type: Approximate amount:		

14. If the program requirements contain a named concentration, do you wish for the concentration to be noted on the student's transcript?:

No

15. Detailed Description:

a. Background information: Students in other Departments like Animal Science, Community Sustainability, Plant Biology, Entomology, Horticulture, Fisheries and Wildlife, Agronomy, Integrative Biology, and Plant, Soil, and Microbial Sciences have expressed interest in minoring in Forestry. Industry hires many professionals with backgrounds in the above fields contingent upon a specified amount of Forestry knowledge. The Department of Forestry has never had a minor and the development of a broad Forestry minor would better serve students in other majors who desire concentrated coursework in forestry.

b. Rationale for offering the program at MSU: Michigan State University has the only Department of Forestry in the lower peninsula. There is currently no sector of the Agricultural Technology program that offers this training, thus development of this minor would be unique to the University.

c. Rationale for program in primary unit: The Department of Forestry is the only unit on campus offering forestry courses.

d. Educational objectives: See outcomes assessment form (attached)

e. Faculty: Current Forestry faculty (assisted by undergraduate advisor Lesley Schumacher-Lott)

f. Plan for evaluating the program:

Michigan State University
Assessing Student Outcomes
College: CANR
Department: Forestry
Program: Minor in Forestry
Program Level: Minor
Contact Person: Lesley Schumacher-Lott

1. List the student learning outcomes for the program. Learning outcomes are statements which describe what students should know or be able to do when they complete the program.

- 1) Identification of forest biomes, tree species, and other forest vegetation
- 2) Quantification of site, stand, and tree characteristics
- 3) Forest sampling and inventory
- 4) Understand how to sustainably manage forests for the products and services they provide
- 5) Understand historic and contemporary issues in forestry
- 6) Understand forest ecosystem processes
- 7) Understand human-forest interactions

Below are institutional level Undergraduate Learning Goals and their associated dimensions.

- 1) Acquires, analyzes, and evaluates information from multiple sources.
- 2) Synthesizes and applies information within and across disciplines.
- 3) Identifies and applies, as appropriate, quantitative methods for defining and responding to problems.
- 4) Identifies the credibility, use and misuse of scientific, humanistic and artistic methods.
- 5) Reflects on experiences with diversity to demonstrate knowledge and sensitivity.
- 6) Understands the structures or local, national, and global governance systems and acts effectively within those structures in both individual and collaborative ways.
- 7) Applies knowledge and abilities to solve societal problems in ethical ways.
- 8) Identifies how contexts affect communication strategies and practices.
- 9) Engages in effective communication practices in a variety of situations and with a variety of media.
- 10) Uses a variety of inquiry strategies incorporating multiple views to make value judgments, solve problems, answer questions, and generate new understanding.

Students will be evaluated via comprehensive quizzes and exams in lectures, assignments (including lab reports), composing research papers, participation in discussion, and correct plant identification/wood knowledge. Outdoor laboratories will be used to assess practical forestry knowledge (outdoor quizzes and exams).

g. Program description:

College of Agriculture and Natural Resources
Department of Forestry
Undergraduate Programs
Minor in Forestry

The minor in Forestry is designed to serve students in other fields who desire additional training related to understanding of the nature of trees and forests and social-biological aspects of managing forest ecosystems. The minor is available to students who are enrolled in Bachelor's degree programs at Michigan State University other than the Bachelor of Science Degree in Forestry.

With the approval of the department and college that administer the student's degree program, courses that are used to satisfy the requirements for the minor may also be used to satisfy the requirements for the Bachelor's degree.

Students who are interested in enrolling should contact an undergraduate advisor in the Department of Forestry.

Requirements for the Minor in Forestry
 The student must complete (16-19 credits):

- 1. Complete all of the following courses (8 credits):
 - FOR 204 Forest Vegetation 3
 - FOR 222 Forestry Field Methods 2
 - FOR 330 Human Dimensions of Forests 3

- 2. One of the following courses (3 credits):
 - FOR 101 Michigan's Forests 3
 - FOR 202 Introduction to Forestry 3

- 3. One of the following covering social aspects of forestry (3-4 credits):
 - FOR 405 Forest Ecosystem Services 3
 - FOR 414 Renewable Wood Products 3
 - FOR 462 Forest Resource Economics and Management 4
 - FOR 466 Natural Resource Policy 3

- 4. One of following covering biological aspects of forestry (2-4 credits):
 - FOR 404 Forest Ecology and FOR 404L Forest Ecology Laboratory 4
 - FOR 406 Applied Forest Ecology: Silviculture and FOR 406L Applied Forest Ecology: Silviculture Laboratory 4
 - FOR 412 Wildland Fire 2
 - PLP 407 Diseases and Insects of Forest and Shade Trees 4

16. Are there admissions requirements for this program?:

Grade or grade-point average requirements and if so in which course(s), portfolio requirement, audition, essay, etc. If there are not admission requirements other than those required by the University policy Indicate "none".

none

DEPARTMENT LEVEL APPROVAL STATUS

Approved: Department of Forestry
 10/27/2015 8:25:05 AM by David Macfarlane for Richard K. Kobe, Chairperson

SIGNOFFS STATUS

Signed Off: Department of Plant, Soil and Microbial Sciences
 10/28/2015 12:16:36 PM by Taylor Johnston for James Kells, Chairperson

COLLEGE LEVEL APPROVAL STATUS

Approved: College of Agriculture and Natural Resources
 10/29/2015 7:52:38 PM by Kelly Millenbah for Kelly Millenbah, Associate Dean



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DEPARTMENT of FORESTRY

Richard K. Kobe, Chairperson

Forest ecosystems, from wilderness areas to forested cities, play a central role in regulating the earth's environmental quality and in providing for human well-being. Forests harbor two-thirds of the world's biodiversity and contain most of the Earth's terrestrial biomass. Forests contain more carbon than there is in the atmosphere, and thus play a major role in the global climate system. Forest ecosystems are a key player in biosphere functioning as they modulate and link atmospheric, terrestrial and hydrological processes. Forests comprise about one-third of land area globally and in the United States. They provide a myriad of benefits to the earth's human population, including renewable wood products and energy, food, medicine, shelter, places for outdoor recreation, and inspiration for cultural and spiritual values. Forest ecosystems regulate air temperature and enhance the water cycle and precipitation to ensure productive agriculture and they stabilize stream flow to reduce soil erosion and flooding.

The Bachelor of Science degree program in Forestry is focused on educating forestry science professionals. It integrates ecology, biology, economics, and social science to help educate students to solve some of the world's most pressing natural resource, environmental, and energy issues. Our graduate programs include a Certificate Program in Forest Carbon Science, Policy and Management, as well as course and research-based master's programs, and a doctoral program. Departmental research encompasses both discovery in fundamental science and problem-oriented applied research.

UNDERGRADUATE PROGRAMS

Forestry is the interdisciplinary science that studies forested ecosystems and the myriad of services they provide. Forest science professionals apply this knowledge to promote forest protection and enhancement and to resolve forest-centered environmental and natural resource issues. Understanding forests requires an integrated interdisciplinary perspective because forests affect and are affected by numerous physical, biological, sociological and economic processes. Forestry professionals develop the knowledge and tools needed to restore and enhance the tremendous capacity of forests to sustain health and prosperity of humans and other organisms.

The Bachelor of Science degree in Forestry at MSU is the longest-standing and among the leading programs in the United States. This status is assured through thoughtful innovation, focused on developing fundamental and applied knowledge of forests' central role in human well-being and environmental quality. Through this program, forestry students will come to understand forest ecosystems from a global perspective, with numerous opportunities for hands-on learning in Michigan and throughout the world.

Students who are enrolled in the Bachelor of Science degree program with a major in Forestry may also elect a specialization in agricultural and natural resources biotechnology. For additional information, refer to the *Specialization in Agricultural and Natural Resources Biotechnology* statement.

FORESTRY

"How can forest ecosystems and all their recognized values be sustained in the modern world?" This is a fundamental question

for the 21st century, as forest ecosystems are facing grave threats all over the world, including large-scale deforestation, forest degradation, invasive pests and pathogens, and global climate change. In the face of these threats, forestry professionals have a great responsibility and opportunity to maintain, restore and enhance the sustainability of forest ecosystems.

Students enrolled in the Bachelor of Science Degree in Forestry program develop an in-depth understanding of the natural and social sciences in order to manage forest ecosystems. Through hands-on laboratory experiences and field studies, students learn how to manage forests for a wide range of goals and acquire the skills to evaluate and ensure the ecological, economic, and social sustainability of forests. They place emphasis on development of analytical and communications skills necessary to create a positive exchange of ideas between forestry professionals and non-technical audiences. Students who graduate from this program will possess the professional training to enable them to contribute significantly to resolution of forest-centered environmental and resource problems.

Forest professionals are employed in a variety of settings. Many choose careers with public land management agencies, such as the United States Department of Agriculture Forest Service, the National Park Service, the Fish and Wildlife Service, the Soil Conservation Service, or state departments of natural resources. Conservation organizations, such as the Wilderness Society and the Nature Conservancy, also hire forestry professionals. Forestry professionals are in high demand in the forest products industry, including in sustainable production of environmentally responsible wood products and management of bio-energy plantations. Increasingly, forestry expertise is required to combat climate change through work on forest-based climate mitigation projects, often in international settings. Forest professionals work with the Peace Corps and other international development organizations in reforestation projects. There are also rewarding careers for forestry professionals in urban and suburban settings, with municipal forestry organizations or with private tree and shrub-care companies in promoting green, sustainable, and livable environments. The high quality education afforded by the bachelor's degree provides the knowledge and skills needed for the career opportunities listed above, and many others, as well as the rigorous background needed for graduate studies in forestry and related fields, including ecology, soil science, environmental science, geography, economics, social science, public policy, and law.

Requirements for the Bachelor of Science Degree in Forestry

1. The University requirements for bachelor's degrees as described in the *Undergraduate Education* section of this catalog; 120 credits, including general elective credits, are required for the Bachelor of Science degree in Forestry.

The University's Tier II writing requirement for the Forestry major is met by completing Forestry 330, 404L, 405, 406L, 414, and 462. Those courses are referenced in item 3. a. below.

Students who are enrolled in the Forestry major leading to the Bachelor of Science degree in the Department of Forestry may complete an alternative track to Integrative Studies in Biological and Physical Sciences that consists of the following courses: Plant Biology 105 and 106 combined; and Chemistry 141 and 161.

The completion of Chemistry 161 and Plant Biology 106 satisfies the laboratory requirement. Plant Biology 105 and 106 combined, and Chemistry 141 and 161 may be counted toward both the alternative track and the requirements for the major referenced in item 3. below.

The completion of the College of Agriculture and Natural Resources mathematics requirement may also satisfy the University mathematics requirement.

2. The requirements of the College of Agriculture and Natural Resources for the Bachelor of Science degree.

Certain courses referenced in requirement 3. below may be counted toward College requirements as appropriate. The completion of Mathematics 124 or 132 satisfies the College's mathematics requirement.

3. The following requirements for the major:

	CREDITS
a. All of the following courses:	61
CEM 141 General Chemistry	4
CEM 161 Chemistry Laboratory I	1

CSS	210	Fundamentals of Soil Science	3
EC	201	Introduction to Microeconomics	3
FOR	110	Seminar on Contemporary Issues in Forests and the Environment	1
FOR	204	Forest Vegetation	3
FOR	222	Forestry Field Methods	2
FOR	330	Human Dimensions of Forests	3
FOR	404	Forest Ecology	3
FOR	404L	Forest Ecology Laboratory	1
FOR	405	Forest Ecosystem Services	3
FOR	406	Applied Forest Ecology: Silviculture	3
FOR	406L	Applied Forest Ecology: Silviculture Laboratory	1
FOR	412	Wildland Fire	2
FOR	414	Renewable Wood Products	3
FOR	420	Forestry Field Studies	3
FOR	462	Forest Resource Economics and Management	4
FOR	466	Natural Resource Policy	3
FOR	472	Ecological Monitoring and Data Analysis	3
FW	419	Applications of Geographic Information Systems to Natural Resources	4
PLB	105	Plant Biology	3
PLB	106	Plant Biology Laboratory	1
PLP	407	Diseases and Insects of Forest and Shade Trees	4
b.	One of the following courses (3 credits):		
MTH	124	Survey of Calculus I	3
MTH	132	Calculus I	3
c.	One of the following courses (3 or 4 credits):		
STT	201	Statistical Methods	4
STT	224	Introduction to Probability and Statistics for Ecologists	3
STT	231	Statistics for Scientists	3
STT	421	Statistics I	3
d.	One of the following courses (3 credits):		
FW	410	Upland Ecosystem Management	3
FW	443	Restoration Ecology	3
FW	444	Conservation Biology	3
e.	One of the following courses (3 credits):		
WRA	320	Technical Writing (W)	3
WRA	331	Writing in the Public Interest (W)	3
WRA	341	Nature, Environmental, and Travel Writing	3
WRA	453	Grant and Proposal Writing	3

Insert ①

GRADUATE STUDY

MINOR IN FORESTRY

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	FOR 222 Forestry Field Methods	2
	FOR 330 Human Dimensions of Forests	3
2.	One of the following courses (3 credits):	
	FOR 101 Michigan's Forests	3
	FOR 202 Introduction to Forestry	3
3.	One of the following courses covering social aspects of Forestry (3 or 4 credits):	
	FOR 405 Forest Ecosystem Services	3
	FOR 414 Renewable Wood Products	3
	FOR 462 Forest Resource Economics and Management	4
	FOR 466 Natural Resource Policy	3
4.	One of the following courses covering biological aspects of Forestry (2 to 4 credits):	
	FOR 404 Forest Ecology	3
	And	
	FOR 404L Forest Ecology Laboratory	1
	FOR 406 Applied Forest Ecology: Silviculture	3
	And	
	FOR 406L Applied Forest Ecology: Silviculture Laboratory	1
	FOR 412 Wildland Fire	2
	PLP 407 Diseases and Insects of Forest and Shade Trees	4